### SEQUENCE LISTING

<110> INCYTE PHARMACEUTICALS, INC. HILLMAN, Jennifer L. YUE, Henry TANG, Y. Tom CORLEY, Neil C. GUEGLER, Karl J. GORGONE, Gina A. PATTERSON, Chandra BAUGHN, Mariah R. LAL, Preeti BANDMAN, Olga REDDY, Roopa AZIMZAI, Yalda SHIH, Leo L. YANG, Junming LU, Dyung Aina M. <120> HUMAN RNA-ASSOCIATED PROTEINS <130> PF-0579 PCT <140> To Be Assigned <141> Herewith <150> 60/097,550; 60/115,639 <151> 1998-08-21; 1999-01-12 <160> 50 <170> PERL Program <210> 1 <211> 216 <212> PRT <213> Homo sapiens <220> <221> misc\_feature <223> Incyte Identification No.: 399781CD1 <400> 1 Met Ser Arg Tyr Leu Arg Pro Pro Asn Thr Ser Leu Phe Val Arg 10 Asn Val Ala Asp Asp Thr Arg Ser Glu Asp Leu Arg Arg Glu Phe 25 Gly Arg Tyr Gly Pro Ile Val Asp Val Tyr Val Pro Leu Asp Phe 35 40 Tyr Thr Arg Arg Pro Arg Gly Phe Ala Tyr Val Gln Phe Glu Asp 50 55 Val Arg Asp Ala Glu Asp Ala Leu His Asn Leu Asp Arg Lys Trp 65 Ile Cys Gly Arg Gln Ile Glu Ile Gln Phe Ala Gln Gly Asp Arg 80 85



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Ser Arg Ser Tyr Glu Arg Arg Arg Ser Arg Ser Arg Ser Phe Asp
                125
                                    130
Tyr Asn Tyr Arg Arg Ser Tyr Ser Pro Arg Asn Ser Arg Pro Thr
                140
                                    145
Gly Arg Pro Arg Arg Glu Ala Ile Pro Thr Met Ile Asp Gln
                155
                                    160
Thr Ala Ala Gly Ile Pro Ser Thr Val Leu Leu Thr Thr Leu Gln
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                                    175
Glu Arg Ser Glu Ser Gly Lys Arg Thr Lys Glu Gly Gln Phe Lys
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Asn Ile Leu Thr Leu Val
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<220>

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| Asp      | Phe | Arg | Gln | Arg<br>20  | Ala | Leu | Ala | Tyr | Phe<br>25  | Glu | Gln | Leu | Lys |            |
| Ser      | Pro | Asp | Ala | Trp<br>35  | Gln | Val | Cys | Ala | Glu<br>40  | Ala | Leu | Ala | Gln | Arg<br>45  |
| Thr      | Tyr | Ser | Asp | Asp<br>50  | His | Val | Lys | Phe | Phe<br>55  | Cys | Phe | Gln | Val | Leu<br>60  |
| Glu      | His | Gln | Val | Lys<br>65  | Tyr | Lys | Tyr | Ser | Glu<br>70  | Leu | Thr | Thr | Val | Gln<br>75  |
| Gln      | Gln | Leu | Ile | Arg<br>80  | Glu | Thr | Leu | Ile | Ser<br>85  | Trp | Leu | Gln | Ala | Gln<br>90  |
| Met      | Leu | Asn | Pro | Gln<br>95  | Pro | Glu | Lys | Thr | Phe<br>100 | Ile | Arg | Asn | Lys | Ala<br>105 |
| Ala      | Gln | Val | Phe | Ala<br>110 | Leu | Leu | Phe | Val | Thr<br>115 | Glu | Tyr | Leu | Thr | Lys<br>120 |
| Trp      | Pro | Lys | Phe | Phe<br>125 | Phe | Asp | Ile | Leu | Ser<br>130 | Val | Val | Asp | Leu | Asn<br>135 |
| Pro      | Arg | Gly | Val | Asp<br>140 | Leu | Tyr | Leu | Arg | Ile<br>145 | Leu | Met | Ala | Ile | Asp<br>150 |
| Ser      | Glu | Leu | Val | Asp<br>155 | Arg | Asp | Val | Val | His<br>160 | Thr | Ser | Glu | Glu | Ala<br>165 |
| Arg      | Arg | Asn | Thr | Leu<br>170 | Ile | Lys | Asp | Thr | Met<br>175 | Arg | Glu | Gln | Cys | Ile<br>180 |
| Pro      | Asn | Leu | Val | Glu<br>185 | Ser | Trp | Tyr | Gln | Ile<br>190 | Leu | Gln | Asn | Tyr | Gln<br>195 |
| Phe      | Thr | Asn | Ser | Glu        | Val | Thr | Cys | Gln | Cys        | Leu | Glu | Val | Val | Gly        |



|     |     |     |     | 200        |     |     |     |     | 205        |     |     |     |     | 210        |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Ala | Tyr | Val | Ser | Trp<br>215 | Ile | Asp | Leu | Ser | Leu<br>220 | Ile | Ala | Asn | Asp | Arg<br>225 |
| Phe | Ile | Asn | Met | Leu<br>230 | Leu | Gly | His | Met | Ser<br>235 | Ile | Glu | Val | Leu | Arg<br>240 |
| Glu | Glu | Ala | Cys | Asp<br>245 | Cys | Leu | Phe | Glu | Val<br>250 | Val | Asn | Lys | Gly | Met<br>255 |
| Asp | Pro | Val | Asp | Lys<br>260 | Met | Lys | Leu | Val | Glu<br>265 | Ser | Leu | Cys | Gln | Val<br>270 |
| Leu | Gln | Ser | Ala | Gly<br>275 | Phe | Phe | Ser | Ile | Asp<br>280 | Gln | Glu | Glu | Asp | Val<br>285 |
| Asp | Phe | Leu | Ala | Arg<br>290 | Phe | Ser | Lys | Leu | Val<br>295 | Asn | Gly | Met | Gly | Gln<br>300 |
| Ser | Leu | Ile | Val | Ser<br>305 | Trp | Ser | Lys | Leu | Ile<br>310 | Lys | Asn | Gly | Asp | Ile<br>315 |
| Lys | Asn | Ala | Gln | Glu<br>320 | Ala | Leu | Gln | Ala | Ile<br>325 | Glu | Thr | Lys | Val | Ala<br>330 |
| Leu | Met | Leu | Gln | Leu<br>335 | Leu | Ile | His | Glu | Asp<br>340 | Asp | Asp | Ile | Ser | Ser<br>345 |
| Asn | Ile | Ile | Gly | Phe<br>350 | Cys | Tyr | Asp | Tyr | Leu<br>355 | His | Ile | Leu | Lys | Gln<br>360 |
|     |     |     | Leu | 365        |     |     |     |     | 370        |     |     |     |     | 375        |
| Met | Leu | Ala | Val | Met<br>380 | Lys | Lys | Leu | Thr | Tyr<br>385 | Asp | Glu | Glu | Tyr | Asn<br>390 |
|     |     |     | Glu | 395        |     |     |     |     | 400        |     |     |     |     | 405        |
|     |     |     | Lys | 410        |     |     |     |     | 415        |     |     |     |     | 420        |
|     |     |     | Leu | 425        |     |     |     |     | 430        |     |     |     |     | 435        |
|     |     |     | Gln | 440        |     |     |     |     | 445        |     |     |     |     | 450        |
|     |     |     | Tyr | 455        |     |     |     |     | 460        |     |     |     |     | 465        |
|     |     |     | Ser | 470        |     |     |     |     | 475        |     |     |     |     | 480        |
|     |     |     | Thr | 485        |     |     |     |     | 490        |     |     | _   |     | 495        |
|     |     |     | Thr | 500        |     |     |     |     | 505        |     |     |     |     | 510        |
|     |     |     | Thr | 515        |     |     |     |     | 520        |     | _   |     |     | 525        |
|     |     |     | Asp | 530        |     |     |     |     | 535        |     |     |     |     | 540        |
|     |     |     | Thr | 545        |     |     |     |     | 550        |     |     |     |     | 555        |
|     |     |     | Met | 560        |     |     |     |     | 565        |     |     |     | _   | 570        |
|     |     |     | Leu | 575        |     |     |     |     | 580        |     | _   |     |     | 585        |
|     |     |     | Ser | 590        |     |     |     |     | 595        | _   |     |     |     | 600        |
|     |     |     | Val | 605        |     |     |     |     | 610        |     |     | _   |     | 615        |
| Leu | Met | Arg | Asn | Leu<br>620 | Leu | Thr | Pro | Leu | Met<br>625 | Glu | Lys | Phe | Lys | Ile<br>630 |



# PCT/US99/19361

| Leu  | Leu      | Glu         | Lys   | Leu<br>635 | Met      | Leu  | Ala    | Gln          | Asp<br>640 | Glu        | Glu | Arg  | Gln      | Ala<br>645 |
|------|----------|-------------|-------|------------|----------|------|--------|--------------|------------|------------|-----|------|----------|------------|
|      | <b>.</b> | 27-         | 7     |            | <b>T</b> | 7    | TT 2 - | 77-          |            | <b>~</b> 1 | D1  | 77-  | 0        |            |
| ser  | Leu      | AIA         | Asp   | 650        | Leu      | ASII | HIS    | Ala          | 655        | GIY        | Pne | Ala  | Ser      | 660        |
| ml   | C        | T           | 7 J - |            | 0        | 7    | T      | <b>~</b> 1 ~ |            | 77-7       | T   | ~1 m | C        |            |
| TILL | ser      | ьys         | Ата   |            | ser      | ASII | ьуs    | GIII         |            | vai        | гЛS | GIII | Cys      |            |
| _    | <b>.</b> | <b>~1</b> . | **- 7 | 665        | -        | _    | ~      | •            | 670        | ml         | -1  | -    | <b>.</b> | 675        |
| Cys  | Ser      | GIU         | vai   | _          | Leu      | Asp  | Cys    | Leu          |            | Thr        | Pne | Leu  | Pro      |            |
| _    | _        | _           | _     | 680        |          | _    | _      |              | 685        | _          | _   |      |          | 690        |
| Leu  | Ser      | Cys         | Pro   |            | GIn      | Lys  | Asp    | Ile          |            | Arg        | Ser | GIY  | Val      |            |
|      | _        |             |       | 695        |          |      |        |              | 700        | <b>-</b>   |     |      |          | 705        |
| Thr  | Phe      | Leu         | His   | _          | Met      | Ile  | Ile    | Cys          |            | Glu        | Glu | Glu  | Val      |            |
|      |          |             |       | 710        |          |      |        |              | 715        |            |     |      |          | 720        |
| Pro  | Phe      | Ile         | Pro   |            | Ala      | Ser  | Glu    | His          |            | Leu        | Lys | Asp  | Cys      |            |
|      |          |             |       | 725        |          |      |        |              | 730        |            |     |      |          | 735        |
| Ala  | Lys      | Asp         | Leu   | Gln        | Glu      | Phe  | Ile    | Pro          | Leu        | Ile        | Asn | Gln  | Ile      | Thr        |
|      |          |             |       | 740        |          |      |        |              | 745        |            |     |      |          | 750        |
| Ala  | Lys      | Phe         | Lys   | Ile        | Gln      | Val  | Ser    | Pro          | Phe        | Leu        | Gln | Gln  | Met      |            |
|      |          |             |       | 755        |          |      |        |              | 760        |            |     |      |          | 765        |
| Met  | Pro      | Leu         | Leu   | His        | Ala      | Ile  | Phe    | Glu          | Val        | Leu        | Leu | Arg  | Pro      | Ala        |
|      |          |             |       | 770        |          |      |        |              | 775        |            |     |      |          | 780        |
| Glu  | Glu      | Asn         | Asp   | Gln        | Ser      | Ala  | Ala    | Leu          | Glu        | Lys        | Gln | Met  | Leu      | Arg        |
|      |          |             |       | 785        |          |      |        |              | 790        |            |     |      |          | 795        |
| Arg  | Ser      | Tyr         | Phe   | Ala        | Phe      | Leu  | Gln    | Thr          | Val        | Thr        | Gly | Ser  | Gly      | Met        |
|      |          |             |       | 800        |          |      |        |              | 805        |            |     |      |          | 810        |
| Ser  | Glu      | Val         | Ile   | Ala        | Asn      | Gln  | Gly    | Ala          | Glu        | Asn        | Val | Glu  | Arg      | Val        |
|      |          |             |       | 815        |          |      |        |              | 820        |            |     |      |          | 825        |
| Leu  | Val      | Thr         | Val   | Ile        | Gln      | Gly  | Ala    | Val          | Glu        | Tyr        | Pro | Asp  | Pro      | Ile        |
|      |          |             |       | 830        |          |      |        |              | 835        |            |     |      |          | 840        |
| Ala  | Gln      | Lys         | Thr   | Cys        | Phe      | Ile  | Ile    | Leu          | Ser        | Lys        | Leu | Val  | Glu      | Leu        |
|      |          |             |       | 845        |          |      |        |              | 850        |            |     |      |          | 855        |
| Trp  | Gly      | Gly         | Lys   | Asp        | Gly      | Pro  | Val    | Gly          | Phe        | Ala        | Asp | Phe  | Val      | Tyr        |
|      |          |             |       | 860        |          |      |        |              | 865        |            |     |      |          | 870        |
| Lys  | His      | Ile         | Val   | Pro        | Ala      | Cys  | Phe    | Leu          | Ala        | Pro        | Leu | Lys  | Gln      | Thr        |
|      |          |             |       | 875        |          |      |        |              | 880        |            |     |      |          | 885        |
| Phe  | Asp      | Leu         | Ala   | Asp        | Ala      | Gln  | Thr    | Val          | Leu        | Ala        | Leu | Ser  | Glu      | Cys        |
|      |          |             |       | 890        |          |      |        |              | 895        |            |     |      |          | 900        |
| Ala  | Val      | Thr         | Leu   | Lys        | Thr      | Ile  | His    | Leu          | Lys        | Arg        | Gly | Pro  | Glu      | Cys        |
|      |          |             |       | 905        |          |      |        |              | 910        |            |     |      |          | 915        |
| Val  | Gln      | Tyr         | Leu   | Gln        | Gln      | Glu  | Tyr    | Leu          | Pro        | Ser        | Leu | Gln  | Val      | Ala        |
|      |          |             |       | 920        |          |      |        |              | 925        |            |     |      |          | 930        |
| Pro  | Glu      | Ile         | Ile   | Gln        | Glu      | Phe  | Cys    | ${\tt Gln}$  | Ala        | Leu        | Gln | Gln  | Pro      | Asp        |
|      |          |             |       | 935        |          |      |        |              | 940        |            |     |      |          | 945        |
| Ala  | Lys      | Val         | Phe   | Lys        | Asn      | Tyr  | Leu    | Lys          | Val        | Phe        | Phe | Gln  | Arg      | Ala        |
|      |          |             |       | 950        |          |      |        |              | 955        |            |     |      |          | 960        |
| Lys  | Pro      |             |       |            |          |      |        |              |            |            |     |      |          |            |
|      |          |             |       |            |          |      |        |              |            |            |     |      |          |            |

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<sup>&</sup>lt;211> 285

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Homo sapiens

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<sup>&</sup>lt;221> misc\_feature

<sup>&</sup>lt;223> Incyte Identification No.: 2263514CD1

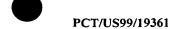
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                                      55
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Gly Gly Tyr Tyr Gly Ala Gly Arg Gly Ser Tyr Gly Gly Phe Asp
Asp Tyr Gly Gly Tyr Asn Asn Tyr Gly Tyr Gly Asn Asp Gly Phe
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                                     115
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<223> Incyte Identification No.: 2738270CD1



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| Asp  | Gly | Lys  | Pro  | Lys<br>50 | Gln | Phe  | Ala      | Phe   | Val<br>55 |      | Phe  | Lys   | His    |            |
| Val  | Sar | 17-1 | Dro  |           |     | 34-4 |          | -     |           |      |      |       |        | 60         |
|      |     |      |      | 65        |     |      |          |       | 70        |      |      |       |        | 75         |
| Tyr  | Gly | Arg  | Pro  | Ile       | Lys | Ile  | Gln      | Phe   |           | Ser  | Gly  | Ser   | Ser    | His        |
|      | _   |      |      | 80        |     |      |          |       | 85        |      |      |       |        | 90         |
| Ala  | Pro | Gln  | Asp  | Val<br>95 | Ser | Leu  | Ser      | Tyr   | Pro       | Gln  | His  | His   | Val    | Gly<br>105 |
| Asn  | Ser | Ser  | Pro  | Thr       | Ser | Thr  | Ser      | Pro   |           | Car  | 720  | Ture  | C1.,   | 7~~        |
|      |     |      |      | 110       |     |      |          | 110   |           | Ser  | Arg  | TAT   | GIU    | -          |
| Thr  | Mot | 7 ~~ | 7    |           |     | _    | _        |       | 115       |      | _    |       |        | 120        |
| 1111 | Mec | Asp  | ASII | Met       | Thr | Ser  | Ser      | Ala   |           | Ile  | Ile  | Gln   | Arg    | Ser        |
|      |     |      |      | 125       |     |      |          |       | 130       |      |      |       |        | 135        |
| Phe  | Ser | Ser  | Pro  | Glu       | Asn | Phe  | Gln      | Arg   | Gln       | Ala  | Val  | Met   | Asn    | Ser        |
|      |     |      |      | 140       |     |      |          |       | 145       |      |      |       |        | 150        |
| Ala  | Leu | Arg  | Gln  | Met       | Ser | Tyr  | Gly      | Glv   | Lvs       | Phe  | Glv  | Ser   | Ser    |            |
|      |     |      |      | 155       |     | -    | -        | -     | 160       |      | 1    |       |        | 165        |
| Leu  | Asp | Gln  | Ser  | Glv       | Phe | Ser  | Pro      | Sar   |           | G1n  | 802  | uic   | C 0.20 | 1114       |
|      | -   |      |      | 170       |     | 501  | 110      | JCI   | 175       | GIII | ser  | nis   | ser    |            |
| Ser  | Dhe | Λcn  | Gln  |           | C   | C    | <b>a</b> | ~7    |           | _    |      |       |        | 180        |
| DCI  | rne | M211 | Gili | 261       | Ser | ser  | ser      | GIn   |           | Arg  | Gin  | GIY   | Thr    | Pro        |
| _    | _   |      | _    | 185       |     |      |          |       | 190       |      |      |       |        | 195        |
| ser  | Ser | GIn  | Arg  | Lys       | Val | Arg  | Met      | Asn   | Ser       | Tyr  | Pro  | Tyr   | Leu    | Ala        |
|      |     |      |      | 200       |     |      |          |       | 205       |      |      |       |        | 210        |
| Asp  | Arg | His  | Tyr  | Ser       | Arg | Glu  | Gln      | Arg   | Tyr       | Thr  | Asp  | His   | Glv    | Ser        |
|      |     |      |      | 215       |     |      |          | _     | 220       |      | -    |       |        | 225        |
| Asp  | His | His  | Tyr  | Arq       | Gly | Lvs  | Ara      | Asp   |           | Phe  | Phe  | Tyr   | Glu    | Acn        |
|      |     |      | -    | 230       | -   |      | 5        |       | 235       |      |      | - y - | Gru    |            |
| Ara  | Asn | His  | Asn  |           | Trn | 802  | Uic      | 7. ~~ |           | 7    | 7    |       | _      | 240        |
| 9    |     |      | .100 | 245       | Trp | 261  | 1112     | Asp   |           | Asp  | ASTI | Arg   | Arg    |            |
| 502  | Cor | 7    | 7    |           | _   | _    | _        | _     | 250       |      |      |       |        | 255        |
| ser  | ser | Arg  | Asp  |           | Lys | Trp  | Arg      | Ser   | Ser       | Arg  | His  |       |        |            |
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                                     40
Thr Glu Arg Ala Leu Lys Leu Val Ser Asp Ser Leu Ser Glu His
                 50
                                     55
Glu Lys Asn Lys Asn Lys Glu Gly Asp Asp Lys Lys Glu Gly Gly
                                     70
Lys Asp Arg Ala Leu Lys Gly Val Leu Arg Val Gly Val Leu Ala
                 80
Lys Gly Leu Leu Arg Gly Asp Arg Asn Val Asn Leu Val Leu
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|       |           |      |      | 95  |      |         |            |       |     |      |              |            |      |     |
|-------|-----------|------|------|-----|------|---------|------------|-------|-----|------|--------------|------------|------|-----|
| T.611 | Cvc       | car  | C1., |     |      | C       | T          | m)    | 100 |      | _            |            |      | 105 |
| шеа   | Cys       | Ser  | Giu  | 110 | PIO  | Ser     | Lys        | Inr   |     |      | Ser          | Arg        | Ile  |     |
| Glu   | Δan       | Len  | Pro  |     |      | 7.000   | חות        | 77- 7 | 115 |      | _            | ~7         | _    | 120 |
|       |           | u    | 110  | 125 |      | пец     | мта        | val   |     |      | Pro          | GIU        | Lys  | _   |
| Asp   | Ile       | Lvs  | Cvs  |     |      | Sar     | Glu        | 77-   | 130 |      | <b>71</b> -  | T          | Asn  | 135 |
|       |           | _,_  | 0,0  | 140 |      | DEI     | Giu        | Ala   | 145 |      | тте          | ьeu        | ASII |     |
| Cvs   | Val       | Glu  | Pro  |     |      | Gln     | Val        | Thr   |     |      | T 011        | The        | Ser  | 150 |
| •     |           |      |      | 155 |      | <b></b> | var        |       | 160 |      | neu          | TIII       | 261  | 165 |
| Ile   | Ile       | Arg  | Glu  | Glu | Asn  | Met     | Ara        | Glu   |     |      | Val          | Thr        | Ser  |     |
|       |           | _    |      | 170 |      |         | 5          |       | 175 |      | vai          | 1111       | JCI  | 180 |
| Met   | Val       | Lys  | Asp  | Pro | Pro  | Asp     | Val        | Leu   | _   | Ara  | Gln          | Lvs        | Cys  |     |
|       |           |      | _    | 185 |      | •       |            |       | 190 | 5    |              |            | 0,0  | 195 |
| Asp   | Ala       | Leu  | Ala  | Ala | Leu  | Arg     | His        | Ala   | Lys | Trp  | Phe          | Gln        | Ala  | Arq |
|       |           |      |      | 200 |      |         |            |       | 205 |      |              |            |      | 210 |
| Ala   | Asn       | Gly  | Leu  | Gln | Ser  | Cys     | Val        | Ile   | Ile | Ile  | Arg          | Ile        | Leu  | Arg |
|       |           |      |      | 215 |      |         |            |       | 220 |      |              |            |      | 225 |
| Asp   | Leu       | Cys  | Gln  |     | Val  | Pro     | Thr        | Trp   | Ser | Asp  | Phe          | Pro        | Ser  | Trp |
|       |           |      |      | 230 |      |         |            |       | 235 |      |              |            |      | 240 |
| Ala   | Met       | Glu  | Leu  |     | Val  | Glu     | Lys        | Ala   |     | Ser  | Ser          | Ala        | Ser  | Ser |
| D     | <b>~1</b> | 0    |      | 245 | _    |         | _          |       | 250 |      |              |            |      | 255 |
| Pro   | GIN       | ser  | Pro  | GIY | Asp  | Ala     | Leu        | Arg   |     | Val  | Phe          | Glu        | Cys  |     |
| Ser   | Sar       | Glar | TIA  | 260 | τ    | T       | <b>a</b> 1 | 0     | 265 | ~ 3  | _            | _          |      | 270 |
| Jer   | 261       | Gry  | TIE  | 275 | ьеи  | гÀг     | GIĀ        | ser   |     | GIY  | Leu          | Leu        | Asp  |     |
| Cvs   | Glu       | Lvs  | Aen  | _   | Dho  | 7 cn    | Thr        | T 011 | 280 | mb   | <b>N</b> 4-+ | <b>m</b> \ | Asp  | 285 |
| -1-   |           | -,-  |      | 290 | 1110 | тър     | 1111       | ьец   | 295 | 1111 | Met          | Inr        | Asp  | 300 |
| Gln   | Arq       | Glu  | Asp  |     | Thr  | Ser     | Ser        | Δla   |     | Dhe  | בומ          | T. 211     | Arg  |     |
|       | _         |      | +    | 305 |      |         |            |       | 310 | 1110 | ALG          | Dea        | nr 9 | 315 |
| Leu   | Ala       | Phe  | Arg  | Gln | Ile  | His     | Lys        | Val   |     | Glv  | Met          | Asp        | Pro  |     |
|       |           |      | _    | 320 |      |         | -          |       | 325 | 1    |              |            |      | 330 |
| Pro   | Gln       | Met  | Ser  | Gln | Arg  | Phe     | Asn        | Ile   | His | Asn  | Asn          | Arq        | Lys  |     |
|       |           |      |      | 335 |      |         |            |       | 340 |      |              |            |      | 345 |
| Arg   | Arg       | Asp  | Ser  | Asp | Gly  | Val     | Asp        | Gly   | Phe | Glu  | Ala          | Glu        | Gly  | Lys |
|       |           |      |      | 350 |      |         |            |       | 355 |      |              |            | -    | 360 |
| Lys   | Asp       | Lys  | Lys  |     | Tyr  | Asp     | Asn        | Phe   |     |      |              |            |      |     |
|       |           |      |      | 365 |      |         |            |       |     |      |              |            |      |     |

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|     |     |     |             | 185         |     |     |     |             | 190 |     |             |     |     | 195 |
|-----|-----|-----|-------------|-------------|-----|-----|-----|-------------|-----|-----|-------------|-----|-----|-----|
| Pro | Thr | Gly | Asp         | Pro         | Gln | Tyr | Leu | Thr         | Glu | Leu | Ala         | His | Tyr | Arg |
|     |     |     |             | 200         |     |     |     |             | 205 |     |             |     |     | 210 |
| Arg | Trp | Gly | Asp         | Ser         | Val | Leu | Leu | Val         | Asp | Leu | Thr         | His | Glu | Glu |
|     |     |     |             | 215         |     |     |     |             | 220 |     |             |     |     | 225 |
| Met | Pro | Gln | Ser         | Ile         | Val | Glu | Ala | Thr         | Ser | Arg | Leu         | Lys | Thr | Phe |
|     |     |     |             | 230         |     |     |     |             | 235 |     |             |     |     | 240 |
| Asn | Leu | Ile | Pro         | Ala         | Val | Gly | Leu | Asn         | Val | His | Ser         | Met | Leu | Lys |
|     |     |     |             | 245         |     |     |     |             | 250 |     |             |     |     | 255 |
| His | Gln | Thr | Leu         | Val         | Leu | Thr | Leu | ${\tt Pro}$ | Thr | Val | Ala         | Phe | Leu | Glu |
|     |     |     |             | 260         |     |     |     |             | 265 |     |             |     |     | 270 |
| Asp | Lys | Leu | Leu         | ${\tt Trp}$ | Gln | Asp | Ser | Arg         | Tyr | Arg | ${\tt Pro}$ | Leu | Tyr | Pro |
|     |     |     |             | 275         |     |     |     |             | 280 |     |             |     |     | 285 |
| Phe | Ser | Leu | Pro         | Tyr         | Ser | Asp | Phe | Pro         | Arg | Pro | Leu         | Pro | His | Ala |
|     |     |     |             | 290         |     |     |     |             | 295 |     |             |     |     | 300 |
| Thr | Gln | Gly | ${\tt Pro}$ | Ala         | Ala | Thr | Pro | Tyr         | His | Cys |             |     |     |     |
|     |     |     |             | 305         |     |     |     |             | 310 |     |             |     |     |     |

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<220>

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| Lys | Lys | Ser | Asn | Arg<br>200 | Arg | Ser | Arg | Ser | Lys<br>205 | Ser | Arg | Ser | Ser | His<br>210 |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Ser | Arg | Ser | Ser | Ser<br>215 | Arg | Ser | Ser | Ser | Pro<br>220 | Ser | Ser | Ser | Arg | Ser<br>225 |
| Arg | Ser | Arg | Ser | Arg<br>230 | Ser | Arg | Ser | Ser | Ser<br>235 | Ser | Ser | Gln | Ser | Arg<br>240 |
| Ser | Arg | Ser | Ser | Ser<br>245 | Arg | Glu | Arg | Ser | Arg<br>250 | Ser | Arg | Gly | Ser | Lys<br>255 |
| Ser | Arg | Ser | Ser | Ser<br>260 | Arg | Ser | His | Arg | Gly<br>265 | Ser | Ser | Ser | Pro | Arg<br>270 |
| Lys | Arg | Ser | Tyr | Ser<br>275 | Ser | Ser | Ser | Ser | Ser<br>280 | Pro | Glu | Arg | Asn | Arg<br>285 |
| Lys | Arg | Ser | Arg | Ser<br>290 | Arg | Ser | Ser | Ser | Ser<br>295 | Gly | Asp | Arg | Lys | Lys        |
| Arg | Arg | Thr | Arg | Ser<br>305 | Arg | Ser | Pro | Glu | Arg<br>310 | Arg | His | Arg | Ser | Ser<br>315 |
| Ser | Gly | Ser | Ser | His<br>320 | Ser | Gly | Ser | Arg | Ser<br>325 | Ser | Ser | Lys | Lys | Lys<br>330 |

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<211> 183

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<221> misc\_feature

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| V=1      | Tle      | Agn   | Glu  | 7.1.5      | 7) cran | 7 ~~        | Tlo        | T 011    | 7. ~~      | 1707      | G1        | Dho          | <b>61</b> | Glu        |
|----------|----------|-------|------|------------|---------|-------------|------------|----------|------------|-----------|-----------|--------------|-----------|------------|
| Val      | 116      | ASD   | Gru  | 335        | Asp     | Arg         | 116        | neu      | 340        | vaı       | СТУ       | Pne          | GIU       | 345        |
| Glu      | Leu      | Lys   | Gln  |            | Ile     | Lys         | Leu        | Leu      |            | Thr       | Arg       | Arg          | Gln       | Thr        |
| Met      | T 011    | Dho   | 50×  | 350        | Th w    | <i>a</i> 15 | mb         | 7        | 355        | 77-7      | <b>G3</b> | 3            | 7         | 360        |
| MEC      | пеп      | FIIC  | ser  | 365        | Thr     | GIII        | IIII       | Arg      | ьуs<br>370 | vai       | GIU       | Asp          | Leu       | 375        |
| Arg      | Ile      | Ser   | Leu  |            | Lys     | Glu         | Pro        | Leu      |            | Val       | Gly       | Val          | Asp       |            |
|          |          |       |      | 380        |         |             |            |          | 385        |           | _         |              | _         | 390        |
| Asp      | Lys      | Ala   | Asn  |            | Thr     | Val         | Asp        | Gly      |            | Glu       | Gln       | Gly          | Tyr       |            |
| Val      | Cvs      | Pro   | Ser  | 395        | Lys     | Δνα         | Dhe        | T.211    | 400        | T.A.I     | Dho       | Thr          | Dho       | 405        |
|          | CyD      |       | 001  | 410        | шуз     | A. 9        | 1110       | пец      | 415        | Бец       | File      | 1111         | FIIC      | 420        |
| Lys      | Lys      | Asn   | Arg  | Lys        | Lys     | Lys         | Leu        | Met      | Val        | Phe       | Phe       | Ser          | Ser       |            |
|          |          |       |      | 425        |         |             |            |          | 430        |           |           |              |           | 435        |
| Met      | Ser      | Val   | Lys  |            | His     | Tyr         | Glu        | Leu      |            | Asn       | Tyr       | Ile          | Asp       |            |
| Pro      | Val      | Leu   | Ala  | 440<br>Ile | His     | Glv         | Lvs        | Gln      | 445<br>Lvs | Gln       | Δsn       | Lvs          | Ara       | 450<br>Thr |
|          |          |       |      | 455        |         |             | 275        | <b>U</b> | 460        | · · · · · | 11011     | 2,5          | **** 9    | 465        |
| Thr      | Thr      | Phe   | Phe  | Gln        | Phe     | Cys         | Asn        | Ala      | Asp        | Ser       | Gly       | Thr          | Leu       | Leu        |
| <b>~</b> | P01 .    | _     |      | 470        |         | _           |            | _        | 475        |           | _         | _            | _         | 480        |
| Cys      | Thr      | Asp   | Val  | A1a<br>485 | Ala     | Arg         | Gly        | Leu      | Asp<br>490 | Ile       | Pro       | Glu          | Val       | _          |
| Trp      | Ile      | Val   | Gln  |            | Asp     | Pro         | Pro        | Asp      |            | Pro       | Lvs       | Glu          | Tvr       | 495<br>Ile |
| -        |          |       |      | 500        | -       |             |            |          | 505        |           | -1-       |              | - 1 -     | 510        |
| His      | Arg      | Val   | Gly  |            | Thr     | Ala         | Arg        | Gly      |            | Asn       | Gly       | Arg          | Gly       |            |
| בות      | Lou      | Lou   | Tlo  | 515        | 7 ~~    | Dwo         | <i>α</i> 3 | ~1       | 520        | G2        | Dh.       | T            | 3         | 525        |
| Ala      | Leu      | ьец   | TIG  | 530        | Arg     | Pro         | GIU        | GIU      | ьеи<br>535 | GIÀ       | Pne       | ьeu          | Arg       | Tyr<br>540 |
| Leu      | Lys      | Gln   | Ser  |            | Val     | Pro         | Leu        | Ser      |            | Phe       | Asp       | Phe          | Ser       | Trp        |
| _        |          | _     |      | 545        |         |             |            |          | 550        |           |           |              |           | 555        |
| Ser      | Lys      | Ile   | Ser  |            | Ile     | Gln         | Ser        | Gln      |            | Glu       | Lys       | Leu          | Ile       |            |
| Lvs      | Asn      | Tvr   | Phe  | 560<br>Leu | His     | Lvs         | Ser        | Δla      | 565        | Glu       | Δla       | Tur          | Lvs       | 570<br>Ser |
|          |          | - 1 - |      | 575        |         | _,_         |            |          | 580        | oru       | 7114      | - 7 -        | шуо       | 585        |
| Tyr      | Ile      | Arg   | Ala  | Tyr        | Asp     | Ser         | His        | Ser      | Leu        | Lys       | Gln       | Ile          | Phe       | Asn        |
| **- 7    | <b>3</b> | -     | _    | 590        | _       | _           |            |          | 595        | _         |           |              |           | 600        |
| vai      | Asn      | Asn   | ьeu  | Asn<br>605 | Leu     | Pro         | GIn        | Val      | A1a<br>610 | Leu       | Ser       | Phe          | Gly       |            |
| Lys      | Val      | Pro   | Pro  |            | Val     | Asp         | Leu        | Asn      |            | Asn       | Ser       | Asn          | Glu       | 615<br>Glv |
| -        |          |       |      | 620        |         | -           |            |          | 625        |           |           |              |           | 630        |
| Lys      | Gln      | Lys   | Lys  | Arg        | Gly     | Gly         | Gly        | Gly      |            | Phe       | Gly       | Tyr          | Gln       | Lys        |
| Thr      | Taro     | Lvc   | 17a7 | 635        | T       | C           | T          | т1 -     | 640        | 7         | *** -     | <b>+</b> 1 - | 0         | 645        |
| 1111     | пуъ      | пур   | val  | 650        | Lys     | ser         | гуѕ        | тте      | Pne<br>655 | гуѕ       | HIS       | тте          | ser       | Lуs<br>660 |
| Lys      | Ser      | Ser   | Asp  |            | Arg     | Gln         | Phe        | Ser      |            |           |           |              |           |            |
|          |          |       |      | 665        |         |             |            |          | 670        |           |           |              |           |            |
|          |          |       |      |            |         |             |            |          |            |           |           |              |           |            |

<sup>&</sup>lt;210> 11

<sup>&</sup>lt;211> 452

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Homo sapiens

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<sup>&</sup>lt;221> misc\_feature

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|----------|------|-----|-----|-----------|-----|-----|-----|------------|-----------|-----|-----|-----|-----|-----------|
| Met<br>1 | Glu  | Phe | Gln | Ala<br>5  | Val | Val | Met | Ala        | Val<br>10 | Gly | Gly | Gly | Ser | Arg<br>15 |
| Met      | Thr  | Asp | Leu | Thr<br>20 | Ser | Ser | Ile | Pro        | Lys<br>25 | Pro | Leu | Leu | Pro | Val<br>30 |
| Gly      | Asn  | Lys | Pro | Leu<br>35 | Ile | Trp | Tyr | Pro        | Leu<br>40 | Asn | Leu | Leu | Glu | Arg<br>45 |
| Val      | Gly  | Phe | Glu | Glu<br>50 | Val | Ile | Val | Val        | Thr<br>55 | Thr | Arg | Asp | Val | Gln<br>60 |
| Lys      | Ala  | Leu | Cys | Ala<br>65 | Glu | Phe | Lys | Met        | Lys<br>70 | Met | Lys | Pro | Asp | Ile<br>75 |
|          |      |     |     | 80        | _   |     | _   | Met        | 85        |     |     | _   |     | 90        |
|          |      |     |     | 95        |     |     |     | Thr        | 100       |     |     |     |     | 105       |
|          |      |     |     | 110       |     |     |     | Leu        | 115       |     |     |     |     | 120       |
|          |      |     |     | 125       |     |     |     | Ala        | 130       |     |     |     |     | 135       |
|          |      |     |     | 140       |     |     |     | Gly        | 145       | _   |     | _   |     | 150       |
|          |      |     |     | 155       |     |     |     | Gly        | 160       |     |     |     |     | 165       |
|          |      |     |     | 170       |     |     |     | Ala        | 175       |     | _   |     |     | 180       |
|          |      |     |     | 185       |     |     |     | Lys        | 190       |     | _   |     |     | 195       |
|          |      |     |     | 200       |     |     |     | Leu        | 205       |     |     |     |     | 210       |
|          |      |     |     | 215       |     |     |     | Gly        | 220       |     |     |     |     | 225       |
|          |      |     |     | 230       |     |     |     | Arg        | 235       |     |     |     |     | 240       |
|          |      |     |     | 245       |     |     |     | Lys        | 250       |     |     |     | -   | 255       |
|          |      |     |     | 260       |     |     |     | Tyr        | 265       |     |     | _   |     | 270       |
|          |      |     |     | 275       |     |     | _   | Asp<br>Ser | 280       | _   |     |     |     | 285       |
|          |      |     |     | 290       |     |     |     | Leu        | 295       |     |     |     | _   | 300       |
|          |      |     |     | 305       |     |     |     |            | 310       |     | _   |     |     | 315       |
|          |      |     |     | 320       |     |     |     | Arg<br>Pro | 325       |     |     |     |     | 330       |
|          |      |     | _   | 335       |     |     |     | Val        | 340       |     |     |     |     | 345       |
|          |      |     |     | 350       |     |     |     |            | 355       |     |     |     |     | 360       |
|          |      |     |     | 365       |     |     |     | Ser        | 370       | _   |     |     |     | 375       |
|          |      |     | _   | 380       |     | _   | _   | Arg        | 385       |     |     |     |     | 390       |
| πeπ      | ₽en  | met | ASI | 395       | val | ınr | val | Glu        | 400       | стА | ser | ASN | тте | 405       |

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| Asp   | Thr   | Ala  | Lys       | Phe        | Ala      | Ser      | Ser        | Glu    | Lys        | His        | Ser        | Tyr   | Gly  | Lys        |
|-------|-------|------|-----------|------------|----------|----------|------------|--------|------------|------------|------------|-------|------|------------|
| Leu   | Val   | Pro  | Glu       | 275<br>Ala | Val      | Gly      | Asp        | Gln    | 280<br>Lys | Ala        | Leu        | Gln   | Glu  | 285<br>Gly |
|       |       |      |           | 290        | _        |          | _          |        | 295        |            |            | _     |      | 300        |
| Glu   | Gly   | Asp  | Leu       | Ser<br>305 | Ile      | Ser      | Ala        | Asp    | Arg<br>310 | Leu        | Ser        | Glu   | Lys  | Arg<br>315 |
| Ser   | Pro   | Asn  | Asp       | Phe<br>320 | Ala      | Leu      | Trp        | Lys    | Ala<br>325 | Ser        | Lys        | Pro   | Gly  | Glu<br>330 |
| Pro   | Ser   | Trp  | Pro       |            | Pro      | Trp      | Gly        | Lys    |            | Arg        | Pro        | Gly   | Trp  |            |
| Ile   | Glu   | Cys  | Ser       |            | Met      | Ala      | Gly        | Thr    |            | Leu        | Gly        | Ala   | Ser  |            |
| Asp   | Ile   | His  | Gly       | Gly        | Gly      | Phe      | Asp        | Leu    | Arg        | Phe        | Pro        | His   | His  | Asp        |
| Asn   | Glu   | Leu  | Ala       |            | Ser      | Glu      | Ala        | Tyr    |            | Glu        | Asn        | Asp   | Cys  | _          |
| 1707  | 7 200 | Time | Dho       | 380        | 7716     | mb ac    | ~1··       | TT i a | 385        | The        | T1.0       | ח ד ת | ~l., | 390        |
|       | Arg   |      |           | 395        |          |          | _          |        | 400        |            |            |       |      | 405        |
| Lys   | Met   | Ser  | Lys       |            | Leu      | Lys      | Asn        | Phe    |            | Thr        | Ile        | Lys   | Asp  |            |
| T All | Tuc   | Larc | цiс       | 410        | ת ד ת    | 7 ~~     | Cln        | T 011  | 415        | Ton        | 777        | Dho   | Lon  | 420<br>Mot |
| пец   | Lys   | пуз  | птъ       | 425        | AIA      | Arg      | GIII       | пеп    | 430        | neu        | Ala        | PHE   | ьеu  | 435        |
| His   | Ser   | Trp  | Lys       |            | Thr      | Leu      | Asp        | Tyr    |            | Ser        | Asn        | Thr   | Met  |            |
|       |       |      | -1-       | 440        |          |          | 1-         | -7-    | 445        |            |            |       |      | 450        |
| Ser   | Ala   | Leu  | Gln       | Tyr<br>455 | Glu      | Lys      | Phe        | Leu    | Asn<br>460 | Glu        | Phe        | Phe   | Leu  | Asn<br>465 |
| Val   | Lys   | Asp  | Ile       |            | Arg      | Ala      | Pro        | Val    |            | Ile        | Thr        | Gly   | Gln  |            |
| Glu   | Lys   | Trp  | Gly       | Glu        | Glu      | Glu      | Ala        | Glu    | Leu        | Asn        | Lys        | Asn   | Phe  | Tyr        |
| Δen   | Lys   | Lare | Thr       | 485        | Tla      | uic      | Lare       | λlο    | 490        | Cve        | λen        | λan   | Wal. | 495        |
| пър   | шуы   | Lys  | ****      | 500        | 116      | 1113     | цуз        | Ата    | 505        | Cys        | ASP        | ASII  | val  | 510        |
| Thr   | Arg   | Thr  | Val       |            | Glu      | Glu      | Met        | Arq    |            | Leu        | Val        | Ser   | Gln  |            |
|       | ,     |      |           | 515        |          |          |            | 5      | 520        |            |            |       |      | 525        |
| Asn   | Leu   | Tyr  | Met       |            | Ala      | Arg      | Lys        | Ala    |            | Arg        | Lys        | Arg   | Pro  |            |
| Gln   | Ala   | Leu  | Leu       | 530<br>Glu | Asn      | Ile      | Ala        | Leu    | 535<br>Tyr | Leu        | Thr        | His   | Met  | 540<br>Leu |
|       |       |      |           | 545        |          |          |            |        | 550        |            |            |       |      | 555        |
| Lys   | Ile   | Phe  | Gly       | Ala<br>560 | Val      | Glu      | Glu        | Asp    | Ser<br>565 | Ser        | Leu        | Gly   | Phe  | Pro<br>570 |
| Val   | Gly   | Gly  | Pro       |            | Thr      | Ser      | Leu        | Ser    |            | Glu        | Ala        | Thr   | Val  |            |
| Dwa   | M     | T    | <b>G3</b> | 575        | <b>T</b> | <b>a</b> | <b>~</b> 1 | D)     | 580        | <b>~</b> 1 | <b>a</b> 1 | **- 7 | 3    | 585        |
| Pro   | Tyr   | ьeu  | GIN       | vaı<br>590 | ьeu      | ser      | GIU        | Pne    |            | GIU        | GTA        | vaı   | Arg  |            |
| Tle   | Ala   | Δrα  | Glu       |            | Laze     | ₹7 ⊃ 1   | Pro        | Gl 11  | 595        | T.011      | Gln        | T.011 | Sor  | 600<br>Agn |
| 110   | AIG   | ALG  | GIU       | 605        | цуз      | vai      | PIO        | GIU    | 610        | Leu        | GIII       | пец   | Ser  | 615        |
| Ala   | Leu   | Arg  | Asp       | Asn        | Ile      | Leu      | Pro        | Glu    | Leu        | Gly        | Val        | Arg   | Phe  | Glu        |
| Asp   | His   | Glu  | Gly       | 620<br>Leu | Pro      | Thr      | Val        | Val    | 625<br>Lys | Leu        | Val        | Asp   | Arg  | 630<br>Asn |
|       | _     | _    | _         | 635        |          |          |            |        | 640        |            |            |       |      | 645        |
| Thr   | Leu   | Leu  | гàг       | Glu<br>650 | Arg      | Glu      | Glu        | Lys    | Arg<br>655 | Arg        | Val        | Glu   | Glu  | Glu<br>660 |
| Lys   | Arg   | Lys  | Lys       | Lys<br>665 | Glu      | Glu      | Ala        | Ala    | Arg<br>670 | Arg        | Lys        | Gln   | Glu  | Gln<br>675 |
| Glu   | Ala   | Ala  | Lys       |            | Ala      | Lys      | Met        | Lys    |            | Pro        | Pro        | Ser   | Glu  |            |
| Phe   | Leu   | Ser  | Glu       |            | Asp      | Lys      | Tyr        | Ser    |            | Phe        | Asp        | Glu   | Asn  |            |



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|     |     |     |     | 695 |     |     |     |     | 700                  |     |     |     |     | 705 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------------------|-----|-----|-----|-----|-----|
| Leu | Pro | Thr | His | Asp | Met | Glu | Gly | Lys | $\operatorname{Glu}$ | Leu | Ser | Lys | Gly | Gln |
|     |     |     |     | 710 |     |     |     |     | 715                  |     |     |     |     | 720 |
| Ala | Lys | Lys | Leu | Lys | Lys | Leu | Phe | Glu | Ala                  | Gln | Glu | Lys | Leu | Tyr |
|     |     |     |     | 725 |     |     |     |     | 730                  |     |     |     |     | 735 |
| Lys | Glu | Tyr | Leu | Gln | Met | Ala | Gln | Asn | Gly                  | Ser | Phe | Gln |     |     |
|     |     |     |     | 740 |     |     |     |     | 745                  |     |     |     |     |     |
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16/47

205

220

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250

265

270

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Tyr Gly Arg Gly Tyr Pro Gly Phe Ala Pro Ser Tyr Gly Tyr Gln

Phe Pro Gly Phe Pro Ala Ala Tyr Gly Pro Val Ala Ala Ala

Ala Val Ala Ala Arg Gly Ser Gly Ser Asn Pro Ala Arg Pro

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230

245

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### PCT/US99/19361

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|        |       |            |          | 260 |      |           |             |       | 265 |       |              |      |       | 270 |
|--------|-------|------------|----------|-----|------|-----------|-------------|-------|-----|-------|--------------|------|-------|-----|
| Cox    | T 011 | C0~        | Sor      | 260 | Λνα  | Glaz      | Arg         | Thr   |     | His   | Ser          | Pro  | Tvr   |     |
| SEL    | пец   | 261        | Ser      | 275 | Arg  | Cry       | Ar 9        |       | 280 |       |              |      | - 1 - | 285 |
| Glu    | Ara   | Ser        | Ara      |     | Lvs  | Glv       | Ser         | Gly   |     | Gln   | Ser          | Glu  | Arg   | Gly |
|        | 5     |            | 5        | 290 |      |           |             | -     | 295 |       |              |      | _     | 300 |
| Ser    | Asp   | Arg        | Thr      | Pro | Glu  | Arg       | Ser         | Arg   | Lys | Glu   | Asn          | His  | Ser   | Ser |
|        |       |            |          | 305 |      |           |             |       | 310 |       |              |      |       | 315 |
| Glu    | Gly   | Thr        | Lys      | Glu | Ser  | Ser       | Ser         | Asn   | Ser | Leu   | Ser          | Asn  | Ser   |     |
|        |       |            |          | 320 |      |           |             |       | 325 |       |              |      | _     | 330 |
| His    | Gly   | Ala        | Glu      |     | Arg  | Gly       | His         | His   |     | His   | His          | His  | Glu   | Ala |
|        |       |            |          | 335 |      |           |             | _     | 340 | _     | _            | ~ 7  | •     | 345 |
| Ala    | Asp   | Ser        | Ser      |     | Gly  | Lys       | Lys         | Ala   |     | Asp   | Ser          | GLu  | Arg   | 360 |
|        | _     | <b>573</b> | m1 .     | 350 |      | <b>01</b> | D           | T     | 355 | 7 011 | <b>~1</b> ,, | ~1.v | Dro   |     |
| His    | Arg   | Thr        | Thr      |     | Ala  | GIU       | Pro         | ьуs   | 370 | ьеи   | GIU          | GIU  | PIO   | 375 |
| TI i a | C1.,  | Thr        | Two      | 365 | Ton  | Tvc       | Asn         | T.211 |     | Glu   | Tvr          | Ala  | Gln   |     |
| nis    | Giu   | TIII       | БУБ      | 380 | Leu  | цуз       | Man         | пси   | 385 | 014   | - 1 -        | 1124 | 02    | 390 |
| T.en   | Gln   | T.e.11     | Glv      |     | Asn  | Glv       | Leu         | Leu   |     | Leu   | Lvs          | Asn  | Ser   | Cys |
| ДСИ    | 0111  |            | U-1      | 395 |      | U-1       |             |       | 400 |       | -            |      |       | 405 |
| Phe    | Pro   | Thr        | Ser      |     | His  | Ile       | Leu         | Glu   | Gly | Asp   | Gln          | Gly  | Val   | Ile |
|        |       |            |          | 410 |      |           |             |       | 415 |       |              |      |       | 420 |
| Ser    | Ser   | Leu        | Leu      | Lys | Asp  | His       | Thr         | Ser   | Gly | Ser   | Lys          | Leu  | Thr   | Gln |
|        |       |            |          | 425 |      |           |             |       | 430 |       |              |      |       | 435 |
| Leu    | Lys   | Ile        | Ala      | Gln | Arg  | Leu       | Arg         | Leu   |     | Gln   | Pro          | Lys  | Leu   |     |
|        |       |            |          | 440 |      |           |             |       | 445 | _     | _            | ~1   | m     | 450 |
| Glu    | Val   | Thr        | Arg      |     | Ile  | Lys       | Gln         | GIY   |     | Pro   | Asn          | GIY  | Tyr   | 465 |
| *** 7  | T     | T          | 70 7 70  | 455 | ~1 m | 777       | Thr         | Dro   | 460 | Clv   | T.e.u        | Glv  | Thr   |     |
| vai    | Leu   | Leu        | Ата      | 470 | GIII | Ala       | 1111        | PIO   | 475 | Gry   | пец          | Gry  | 1111  | 480 |
| Gly    | Mot   | Pro        | Thr      |     | Glu  | Pro       | Glv         | Leu   |     | Ara   | Arg          | Leu  | Leu   | Arg |
| Gry    | ricc  | 110        | 1111     | 485 | 014  |           | <b>U</b> _1 |       | 490 | 5     |              |      |       | 495 |
| Asn    | Leu   | Val        | Ser      |     | Leu  | Lys       | Gln         | Lys   | Gln | Ala   | Ala          | Gly  | Val   | Ile |
|        |       |            |          | 500 |      | -         |             | _     | 505 |       |              |      |       | 510 |
| Ser    | Leu   | Pro        | Val      | Gly | Gly  | Ser       | Lys         | Gly   | Arg | Asp   | Gly          | Thr  | Gly   | Met |
|        |       |            |          | 515 |      |           |             |       | 520 |       |              |      |       | 525 |
| Leu    | Tyr   | Ala        | Phe      | Pro | Pro  | Cys       | Asp         | Phe   |     |       | Gln          | Tyr  | Leu   | Gln |
|        |       |            |          | 530 |      |           |             |       | 535 |       |              |      |       | 540 |
| Ser    | Ala   | Leu        | Arg      |     |      | Gly       | Lys         | Leu   |     |       | Glu          | His  | Met   | Val |
| _      |       |            | <b>_</b> | 545 |      |           |             |       | 550 |       |              |      |       | 555 |
| Ile    | Val   | Ile        | Val      | _   | _    | Thr       | Ala         |       |     |       |              |      |       |     |
|        |       |            |          | 560 | 1    |           |             |       |     |       |              |      |       |     |





| Lys | Lys | Pro | Leu | Gly | Pro | Pro | Pro | Pro | Ser        | Tyr | Thr | Cys | Phe |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|------------|-----|-----|-----|-----|-----|
|     |     |     |     | 20  |     |     |     |     | 25         |     |     |     |     | 30  |
| Cys | Gly | Lys | Pro | Gly | His | Tyr | Ile | Lys | Asn        | Cys | Pro | Thr | Asn | Gly |
|     |     |     |     | 35  |     |     |     |     | 40         |     |     |     |     | 45  |
| Asp | Lys | Asn | Phe | Glu | Ser | Gly | Pro | Arg | Ile        | Lys | Lys | Ser | Thr | Gly |
| _   | _   |     |     | 50  |     |     |     |     | <b>5</b> 5 |     |     |     |     | 60  |
| Ile | Pro | Arg | Ser | Phe | Met | Met | Glu | Val | Lys        | Asp | Pro | Asn | Met | Lys |
|     |     | _   |     | 65  |     |     |     |     | 70         |     |     |     |     | 75  |
| Gly | Ala | Met | Leu | Thr | Asn | Thr | Gly | Lys | Tyr        | Ala | Ile | Pro | Thr | Ile |
| •   |     |     |     | 80  |     |     |     |     | 85         |     |     |     |     | 90  |
| Asp | Ala | Glu | Ala | Tyr | Ala | Ile | Gly | Lys | Lys        | Glu | Lys | Pro | Pro | Phe |
|     |     |     |     | 95  |     |     | _   |     | 100        |     |     |     |     | 105 |
| Leu | Pro | Glu | Glu | Pro | Ser | Ser | Ser | Ser | Glu        | Glu | Asp | Asp | Pro | Ile |
|     |     |     |     | 110 |     |     |     |     | 115        |     |     |     |     | 120 |
| Pro | Asp | Glu | Leu | Leu | Cys | Leu | Ile | Cys | Lys        | Asp | Ile | Met | Thr | Asp |
|     |     |     |     | 125 | •   |     |     |     | 130        |     |     |     |     | 135 |
| Ala | Val | Val | Ile | Pro | Cys | Cys | Gly | Asn | Ser        | Tyr | Cys | Asp | Glu | Cys |
|     |     |     |     | 140 | •   | -   | _   |     | 145        |     |     |     |     | 150 |
| Lys | Lys | Cys |     |     |     |     |     |     |            |     |     |     |     |     |

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WO 00/11171

<223> Incyte Identification No.: 2073417CD1

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Thr Asn Gln Arg Ala Glu Ile His Ala Ala Cys Lys Ala Ile Glu Gln Ala Lys Thr Gln Asn Ile Asn Lys Leu Val Leu Tyr Thr Asp 200 205 Ser Met Phe Thr Ile Asn Gly Ile Thr Asn Trp Val Gln Gly Trp 215 220 Lys Lys Asn Gly Trp Lys Thr Ser Ala Gly Lys Glu Val Ile Asn 230 235 Lys Glu Asp Phe Val Ala Leu Glu Arg Leu Thr Gln Gly Met Asp 250 245 Ile Gln Trp Met His Val Pro Gly His Ser Gly Phe Ile Gly Asn 265 Glu Glu Ala Asp Arg Leu Ala Arg Glu Gly Ala Lys Gln Ser Glu Asp

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| Leu | Cys | Ala | Gln | Lys<br>215        | Ala | Lys | Ala | Ala | Leu<br>220 | Asn | Gly | Ala | Asp | Ile<br>225 |
|-----|-----|-----|-----|-------------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Tyr | Ala | Gly | Cys | Cys<br>230        | Thr | Leu | Lys | Ile |            | Tyr | Ala | Arg | Pro |            |
| Arg | Leu | Asn | Val | Ile<br>245        | Arg | Asn | Asp | Asn | Asp<br>250 | Ser | Trp | Asp | Tyr | Thr<br>255 |
| Lys | Pro | Tyr | Leu | Gly<br>260        | Arg | Arg | Asp | Arg | Gly<br>265 | Lys | Gly | Arg | Gln | Arg<br>270 |
|     |     |     |     | Gly<br>275        |     |     |     |     | 280        |     |     |     | _   | 285        |
|     |     |     |     | Gly<br>290        |     |     |     |     | 295        |     |     | _   |     | 300        |
|     | _   |     | _   | Asp<br>305        |     |     |     |     | 310        |     | -   |     |     | 315        |
|     |     |     |     | Ser<br>320        |     |     |     |     | 325        |     |     |     |     | 330        |
|     |     |     |     | 335               |     |     |     |     | 340        |     |     |     | -   | 345        |
|     |     |     |     | Leu<br>350        |     |     |     |     | 355        |     |     |     |     | 360        |
| _   |     |     | -   | Thr 365           |     |     | •   |     | 370        |     |     |     |     | 375        |
|     |     |     |     | Val<br>380        |     |     |     |     | 385        |     |     |     |     | 390        |
|     |     |     |     | Lys<br>395        |     |     |     |     | 400        |     |     |     |     | 405        |
|     |     |     |     | Ser<br>410        |     |     |     |     | 415        |     | _   | _   |     | 420        |
|     | _   | _   | _   | Phe 425           |     |     |     | -   | 430        |     | _   |     |     | 435        |
|     |     |     |     | Ser               |     |     |     |     | 445        |     |     |     |     | 450        |
|     |     | _   | _   | Asn<br>455<br>Asn |     |     |     | _   | 460        |     |     |     |     | 465        |
|     |     |     | -   | 470               | _   |     |     |     | 475        |     |     |     | -   | 480        |
|     |     |     |     | Ala<br>485        |     |     |     |     | 490        |     |     |     |     | 495        |
|     |     | _   |     | Cys<br>500        | -   |     | -   |     | 505        |     |     |     |     | 510        |
|     |     |     | _   | Gln<br>515        |     | _   |     |     | 520        | _   |     | ASI | Pro | 1yr<br>525 |
| inr | ьeu | ьys | ьeu | Cys               | rne | ser | ınr | ser | ser        | HIS | Leu |     |     |            |

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<sup>&</sup>lt;220>

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<sup>&</sup>lt;223> Incyte Identification No.: 2472867CD1



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20 25 30

Pro Gly Ala Ala Ser Leu Trp Ser Ala Ser Arg Arg Phe Asn Ser

35 40 Gln Ser Thr Ser Tyr Leu Pro Gly Tyr Val Pro Lys Thr Ser Leu Ser Ser Pro Pro Trp Pro Glu Val Val Leu Pro Asp Pro Val Glu 65 70 Glu Thr Arg His His Ala Glu Val Val Lys Lys Val Asn Glu Met 80 85 Ile Val Thr Gly Gln Tyr Gly Arg Leu Phe Ala Val Wal His Phe 95 100 Ala Ser Arg Gln Trp Lys Val Thr Ser Glu Asp Leu Ile Leu Ile 110 115 Gly Asn Glu Leu Asp Leu Ala Cys Gly Glu Arg Ile Arg Leu Glu 125 130 Lys Val Leu Leu Val Gly Ala Asp Asn Phe Thr Leu Leu Gly Lys 145 Pro Leu Leu Gly Lys Asp Leu Val Arg Val Glu Ala Thr Val Ile 160 Glu Lys Thr Glu Ser Trp Pro Arg Ile Ile Met Arg Phe Arg Lys 170 175 Arg Lys Asn Phe Lys Lys Lys Arg Ile Val Thr Thr Pro Gln Thr 185 190 Val Leu Arg Ile Asn Ser Ile Glu Ile Ala Pro Cys Leu Leu 200 205

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<213> Homo sapiens

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<223> Incyte Identification No.: 3702292CD1

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Met Ala Pro Lys Ala Lys Glu Ala Pro Ala His Pro Lys Ala Glu Ala Lys Ala Lys Ala Leu Lys Ala Lys Lys Ala Val Leu Lys Gly 20 Val Arg Ser His Thr Gln Lys Gln Lys Ile Arg Met Ser Leu Thr Phe Arg Arg Pro Lys Thr Leu Arg Leu Arg Arg Gln Pro Arg Tyr Pro Arg Lys Ser Thr Pro Arg Arg Asn Lys Leu Gly His Tyr Ala 75 Ile Ile Lys Phe Pro Leu Ala Thr Glu Ser Ala Val Lys Lys Ile 80 85 Glu Glu Asn Asn Thr Leu Val Phe Thr Val Asp Val Lys Ala Asn 95 100 Lys His Gln Ile Arg Gln Ala Val Lys Lys Leu Tyr Asp Ser Asp 110 115 Val Ala Lys Val Thr Thr Leu Ile Cys Pro Asp Lys Glu Asn Lys 125 130 Ala Tyr Val Arg Leu Ala Pro Asp Tyr Asp Ala Phe Asp Val Val 140 145

Thr Lys Leu Gly Ser Pro Lys Leu Ser Pro Ala Gly
155 160

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<211> 623 <212> PRT <213> Homo sapiens <220> <221> misc\_feature <223> Incyte Identification No.: 3778908CD1 <400> 23 Met Ala Thr Glu His Val Asn Gly Asn Gly Thr Glu Glu Pro Met 10 Asp Thr Thr Ser Ala Val Ile His Ser Glu Asn Phe Gln Thr Leu 25 Leu Asp Ala Gly Leu Pro Gln Lys Val Ala Glu Lys Leu Asp Glu 35 40 Ile Tyr Val Ala Gly Leu Val Ala His Ser Asp Leu Asp Glu Arg 50 55 Ala Ile Glu Ala Leu Lys Glu Phe Asn Glu Asp Gly Ala Leu Ala 65 70 Val Leu Gln Gln Phe Lys Asp Ser Asp Leu Ser His Val Gln Asn 80 85 Lys Ser Ala Phe Leu Cys Gly Val Met Lys Thr Tyr Arg Gln Arg 95 100 Glu Lys Gln Gly Thr Lys Val Ala Asp Ser Ser Lys Gly Pro Asp 110 115 Glu Ala Lys Ile Lys Ala Leu Leu Glu Arg Thr Gly Tyr Thr Leu 125 130 Asp Val Thr Thr Gly Gln Arg Lys Tyr Gly Gly Pro Pro Pro Asp 140 145 Ser Val Tyr Ser Gly Gln Gln Pro Ser Val Gly Thr Glu Ile Phe 155 160 Val Gly Lys Ile Pro Arg Asp Leu Phe Glu Asp Glu Leu Val Pro 170 175 Leu Phe Glu Lys Ala Gly Pro Ile Trp Asp Leu Arg Leu Met Met 185 190 Asp Pro Leu Thr Gly Leu Asn Arg Gly Tyr Ala Phe Val Thr Phe 200 205 Cys Thr Lys Glu Ala Ala Gln Glu Ala Val Lys Leu Tyr Asn Asn 220 His Glu Ile Arg Ser Gly Lys His Ile Gly Val Cys Ile Ser Val 230 235 Ala Asn Asn Arg Leu Phe Val Gly Ser Ile Pro Lys Ser Lys Thr 245 250 Lys Glu Gln Ile Leu Glu Glu Phe Ser Lys Val Thr Glu Gly Leu 260 265 Thr Asp Val Ile Leu Tyr His Gln Pro Asp Asp Lys Lys Lys Asn 275 280 Arg Gly Phe Cys Phe Leu Glu Tyr Glu Asp His Lys Thr Ala Ala 290 295 Gln Ala Arg Arg Leu Met Ser Gly Lys Val Lys Val Trp Gly

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|          |       |            |       | 305        |              |                 |                |           | 310        |       |      |         |                  | 315 |
|----------|-------|------------|-------|------------|--------------|-----------------|----------------|-----------|------------|-------|------|---------|------------------|-----|
| Asn      | Val   | Gly        | Thr   | Val        | Glu          | Trp             | Ala            | Asp       | Pro        | Ile   | Glu  | Asp     | Pro              | Asp |
|          |       | _          |       | 320        |              |                 |                |           | 325        |       |      |         |                  | 330 |
| Pro      | Glu   | Val        | Met   | Ala        | Lys          | Val             | Lys            | Val       |            | Phe   | Val  | Arg     | Asn              | Leu |
|          |       |            |       | 335        |              |                 |                |           | 340        |       |      |         |                  | 345 |
| Ala      | Asn   | Thr        | Val   | Thr        | Glu          | Glu             | Ile            | Leu       | Glu        | Lys   | Ala  | Phe     | Ser              | Gln |
|          |       |            |       | 350        |              |                 |                |           | 355        |       |      |         |                  | 360 |
| Phe      | Gly   | Lys        | Leu   | Glu        | Arg          | Val             | Lys            | Lys       | Leu        | Lys   | Asp  | Tyr     | Ala              | Phe |
|          |       |            |       | 365        |              |                 |                |           | 370        |       |      |         |                  | 375 |
| Ile      | His   | Phe        | Asp   | Glu        | Arg          | Asp             | Gly            | Ala       | Val        | Lys   | Ala  | Met     | Glu              | Glu |
|          |       |            |       | 380        |              |                 |                |           | 385        |       |      |         |                  | 390 |
| Met      | Asn   | Gly        | Lys   | Asp        | Leu          | Glu             | Gly            | Glu       | Asn        | Ile   | Glu  | Ile     | Val              | Phe |
|          |       |            |       | 395        |              |                 |                |           | 400        |       |      |         |                  | 405 |
| Ala      | Lys   | Pro        | Pro   | Asp        | Gln          | Lys             | Arg            | Lys       | Glu        | Arg   | Lys  | Ala     | Gln              | Arg |
|          |       |            |       | 410        |              |                 |                |           | 415        |       |      |         |                  | 420 |
| Gln      | Ala   | Ala        | Lys   | Asn        | Gln          | Met             | $\mathtt{Tyr}$ | Asp       | Asp        | Tyr   | Tyr  | Tyr     | Tyr              | Gly |
|          |       |            |       | 425        |              |                 |                |           | 430        |       |      |         |                  | 435 |
| Pro      | Pro   | His        | Met   | Pro        | Pro          | Pro             | Thr            | Arg       | _          | Arg   | Gly  | Arg     | Gly              | _   |
|          | _     |            |       | 440        |              |                 |                |           | 445        |       |      |         |                  | 450 |
| Arg      | Gly   | Gly        | Tyr   | Gly        | Tyr          | Pro             | Pro            | Asp       |            | Tyr   | Gly  | Tyr     | Glu              |     |
|          |       |            |       | 455        |              |                 |                |           | 460        |       |      |         |                  | 465 |
| Tyr      | Tyr   | Asp        | Tyr   | Tyr        | Gly          | Tyr             | Asp            | Tyr       |            | Asn   | Tyr  | Arg     | Gly              | _   |
| _        |       | _          | _     | 470        |              |                 |                |           | 475        |       |      |         | _                | 480 |
| Tyr      | GLu   | Asp        | Pro   | Tyr        | Tyr          | Gly             | Tyr            | Glu       | _          | Phe   | Gln  | Val     | Gly              |     |
| _        | ~-3   | _          |       | 485        | _            |                 |                | _         | 490        |       |      |         |                  | 495 |
| Arg      | GIY   | Arg        | Gly   | Gly        | Arg          | GIY             | Ala            | Arg       |            | Ala   | Ala  | Pro     | Ser              |     |
| C1       | 7     | <b>~</b> 1 | 77-   | 500        | D            | D               | 3              | <b>~1</b> | 505        | 33    | ~7   | <b></b> | <b>^</b> - · · · | 510 |
| GIY      | Arg   | GIĀ        | Ата   | Ala<br>515 | Pro          | Pro             | Arg            | GIY       | Arg<br>520 | Ата   | GIĀ  | Tyr     | ser              |     |
| 7) 70 00 | C1    | C111       | Dvo   | Gly        | Com          | ח ז ת           | 7\             | <b>~1</b> |            | 7     | ~1   | 77-     | 7                | 525 |
| Arg      | сту   | GIY        | PIO   | 530        | ser          | Ala             | Arg            | GIY       |            | Arg   | GIY  | Ата     | Arg              | _   |
| Glv      | ת ו ת | Cln        | Cln   | Gln        | 7 ~~         | C1.,            | 7 ~~           | C1        | 535        | 7 ~~~ | ~1·· | ח ד ת   | 7. ~~            | 540 |
| GIY      | ALG   | GIII       | GIII  | 545        | Arg          | GIY             | Arg            | Gry       | 550        | Arg   | GIY  | Ата     | Arg              | 555 |
| Glv      | Δrα   | Glv        | Glv   | Asn        | 17a 1        | Gl <sub>3</sub> | G1 v           | Tvc       |            | Tarc  | ת דת | 700     | C111             |     |
| Gry      | Arg   | Gry        | Gry   | 560        | vaı          | Gry             | GIY            | шуѕ       | 565        | пуъ   | нта  | Asp     | GIA              | 570 |
| Δen      | Gln   | Pro        | Aen   | Ser        | Lare         | λνα             | 71 200         | Gln       |            | λcn   | λαη  | Gl n    | λαη              |     |
| ADII     | 0111  | 110        | rap   | 575        | шуз          | Arg             | Arg            | GIII      | 580        | ASII  | ASII | GIII    | ASII             | 585 |
| Glv      | Ser   | Gln        | Pro   | Ile        | <b>Δ</b> ] = | Gln             | Gln            | Dro       |            | Gln   | Glv  | Glv     | λen              |     |
|          | JC1   | U111       | 110   | 590        | ALA          | 0111            | 0111           | -10       | 595        | 0111  | Gry  | GIY     | тэћ              | 600 |
| Ser      | Glv   | Asn        | Tvr   | Gly        | Tvr          | Live            | Ser            | Glu       |            | Gln   | Glu  | Dhe     | Туг              |     |
|          | 1     | - +11      | + J + | 605        | - y -        | -y S            | 501            | JIU       | 610        | J111  | JIU  | - 11C   | - y -            | 615 |
| Asp      | Thr   | Phe        | Glv   | Gln        | Gln          | Tro             | Tave           |           | 010        |       |      |         |                  | 010 |
|          |       |            | - Y   | 6211       | J.1.1        | 111             | <i>y -</i> 3   |           |            |       |      |         |                  |     |

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<210> 24
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620

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<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Homo sapiens

<sup>&</sup>lt;220>

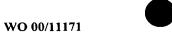
<sup>&</sup>lt;221> misc\_feature

<sup>&</sup>lt;223> Incyte Identification No.: 4163642CD1

<sup>&</sup>lt;400> 24



| Met      | Ser   | Phe   | Ser        | Arg        | Ala   | Leu   | Leu   | Trp   |            | Arg   | Leu   | Pro   | Ala   | Gly<br>15  |
|----------|-------|-------|------------|------------|-------|-------|-------|-------|------------|-------|-------|-------|-------|------------|
| 1<br>Arg | Gln   | Ala   | Gly        |            | Arg   | Ala   | Ala   | Ile   |            | Ser   | Ala   | Leu   | Arg   | Pro        |
| TT       | Dho   | C] v  | Dro        | 20<br>Dhe  | Dro   | Glv   | Val   | Leu   | 25<br>Glv  | Gln   | Val   | Ser   | Val   | 30<br>Leu  |
| нтѕ      | Pine  | GIY   | PIO        | 35         | FIO   | Gry   | vai   | Dou   | 40         | J     |       |       |       | 45         |
| Ala      | Thr   | Ala   | Ser        | Ser<br>50  | Ser   | Ala   | Ser   | Gly   | Gly<br>55  | Ser   | Lys   | Ile   | Pro   | Asn<br>60  |
| Thr      | Ser   | Leu   | Phe        |            | Pro   | Leu   | Thr   | Val   | Lys<br>70  | Pro   | Gln   | Gly   | Pro   | Ser<br>75  |
| Ala      | Asp   | Gly   | Asp        |            | Gly   | Ala   | Glu   | Leu   | Thr<br>85  | Arg   | Pro   | Leu   | Asp   | Lys<br>90  |
| Asn      | Glu   | Val   | Lys        |            | Val   | Leu   | Asp   | Lys   |            | Tyr   | Lys   | Arg   | Lys   | Glu<br>105 |
| Ile      | Gln   | Lys   | Leu        |            | Ala   | Asp   | Tyr   | Gly   |            | Asp   | Ala   | Arg   | Leu   |            |
| His      | Gln   | Ala   | Phe        | Ile        | Ser   | Phe   | Arg   | Asn   | Tyr        | Ile   | Met   | Gln   | Ser   | His        |
| 0        | T     | 7 ~~  | ۲ <i>7</i> | 125        | Tla   | Wie   | Tle   | Val   | 130        | Δsn   | Asp   | Tle   | Cvs   | 135<br>Phe |
| Ser      | ьeu   | Asp   | val        | 140        | 116   | 1113  | 116   | Val   | 145        |       | 1.00  |       | -1-   | 150        |
| Gly      | Ala   | Ala   | His        |            | Asp   | Asp   | Leu   | Phe   |            | Phe   | Phe   | Leu   | Arg   | His        |
| 7 J -    | T = 1 | ~1 ~  | Tla        | 155        | Dro   | V-1   | T.em  | Asp   | 160        | Lvs   | Asp   | Asp   | Leu   | 165<br>Ara |
| Ala      | гуу   | GIII  | 116        | 170        | FIO   | Vai   | ыси   | ADP   | 175        | 2,0   |       |       |       | 180        |
| Lys      | Ile   | ser   | Asp        | Leu<br>185 | Arg   | Ile   | Pro   | Pro   | Asn<br>190 | Trp   | Tyr   | Pro   | Asp   | Ala<br>195 |
| Arg      | Ala   | Met   | Gln        |            | Lys   | Ile   | Ile   | Phe   | His<br>205 | Ser   | Gly   | Pro   | Thr   | Asn<br>210 |
| Ser      | Gly   | Lys   | Thr        |            | His   | Ala   | Ile   | Gln   | Lys<br>220 | Tyr   | Phe   | Ser   | Ala   | Lys<br>225 |
| Ser      | Gly   | Val   | Tyr        |            | Gly   | Pro   | Leu   | Lys   | Leu<br>235 | Leu   | Ala   | His   | Glu   | Ile<br>240 |
| Phe      | Glu   | Lys   | Ser        |            |       | Ala   | Gly   | Val   |            | Cys   | Asp   | Leu   | Val   | Thr<br>255 |
| Gly      | Glu   | Glu   | Arg        | Val        | Thr   | Val   | Gln   | Pro   |            | Gly   | Lys   | Gln   | Ala   | Ser<br>270 |
| His      | Val   | Ser   | Cys        |            | Val   | Glu   | Met   | Cys   | Ser        | Val   | Thr   | Thr   | Pro   | Tyr<br>285 |
| Glu      | Val   | Ala   | Val        | 275<br>Ile |       | Glu   | Ile   | Gln   | 280<br>Met | Ile   | Arg   | Asp   | Pro   | Ala        |
|          |       |       |            | 290        | ı     |       |       |       | 295        |       |       |       |       | 300        |
| Arg      | Gly   | Trp   | Ala        |            |       | Arg   | Ala   | Leu   | Leu<br>310 | Gly   | Leu   | . Cys | Ala   | Glu<br>315 |
| Glu      | Val   | His   | Leu        | 305<br>Cvs |       | Glu   | Pro   | Ala   |            |       | Asp   | Leu   | val   | Met        |
|          |       |       |            | 320        | )     |       |       |       | 325        |       |       |       |       | 330        |
|          |       |       |            | 335        | ,     |       |       |       | 340        |       |       |       |       | 345        |
| Lys      | Arg   | Lev   | Thr        | 9rc        |       | Ser   | . Val | Leu   | Asp<br>355 |       | : Ala | Lev   | ı Glu | 360        |
| Leu      | Asp   | Asr   | Leu        |            | Pro   | Gly   | / Asp | Cys   |            | · Val | Суя   | Phe   | e Ser | Lys<br>375 |
| Asr      | a Asp | Ile   | туг        | Ser        | · Val | ser   | Arg   | g Gln |            | Glu   | ı Ile | e Arg | g Gly | Leu 390    |
| Glu      | ı Ser | Ala   | val        | 380<br>Ile |       | Gly   | , Ser | Leu   |            |       | Gly   | / Thi | . Lys | Leu        |
|          |       |       |            | 395        | 5     |       |       |       | 400        | )     |       |       |       | 405        |
| Ala      | Glr   | ı Ala | Lys        | Lys<br>410 |       | e Asr | ı Asp | Pro   | Asr<br>415 |       | Pro   | Cys   | s Lys | 1le<br>420 |
| Lev      | ı Val | . Ala | a Thi      |            |       | a Ile | e Gly | / Met |            |       | ı Ası | ı Let | ı Sei | Ile        |





|             |       |       |          |     |          |           |          |      | 420        |        |      |        |       | 435 |
|-------------|-------|-------|----------|-----|----------|-----------|----------|------|------------|--------|------|--------|-------|-----|
|             | _     |       |          | 425 | <b></b>  | <b>9</b>  | <b>.</b> | т1 о | 430        | Dro    | 802  | Tla    | Δen   |     |
| Arg         | Arg   | Ile   | lle      |     | Tyr      | ser       | Leu      | 116  | цу5<br>445 | PIO    | DET  | 110    | ADII  | 450 |
| _           |       | ~-7   | _        | 440 | <b>*</b> | <b>~1</b> | D        | т10  |            | ጥኮሎ    | Ser  | Gln    | Δla   |     |
| Lys         | GIY   | Glu   | Arg      |     | ьeu      | Gru       | PIO      | TIE  | 460        | 1111   | DCI  | 0111   |       | 465 |
| ~ 7         |       |       | a1       | 455 | 71.      | ~1        | 7.~~     | Dho  |            | Sar    | Δra  | Phe    | Lvs   |     |
| GIn         | TTE   | Ala   | GIY      |     | AIA      | GTÀ       | Arg      | Pne  | 475        | 261    | nr 9 | 1 110  | шуы   | 480 |
| ~ -         | ~-7   | 1     | ml       | 470 | N        | 7         | uia      | C1,, |            | T.A11  | Sar  | T.e.11 | T.eu  |     |
| GIY         | Glu   | Val   | unr      |     | Met      | ASII      | nis      | GIU  | 490        | шеu    | DCI  | шси    | 200   | 495 |
|             |       | _     |          | 485 | D        | 17 7      | 7 ~~     | Drea |            | 7 ~~~  | 71 = | Δla    | Glv   |     |
| Glu         | тте   | Leu   | гàг      |     | PIO      | vai       | Asp      | PIO  | 505        | nr 9   | ALG  | 7114   | 017   | 510 |
|             |       | Thr   | 77-      | 500 | C1-      | T10       | C1.,     | Mot  |            | Δla    | ጥህተ  | His    | Leu   |     |
| His         | Pro   | Thr   | Ала      |     | GIII     | TIE       | Gru      | Mec  | 520        | Ала    | ı yı | 1115   |       | 525 |
| _           |       | Thr   | <b>.</b> | 515 | 7 ~~     | T 011     | Tl o     | λcn  |            | Dhe    | Val  | Asp    | Phe   |     |
| Asp         | Ala   | Tnr   | ьeu      |     | ASII     | Leu       | 116      | Asp  | 535        | FIIC   | VUI  | 1.00   |       | 540 |
| <b>a</b> 1. | *** 7 | Asp   | a3       | 530 | TT       | Dho       | Val.     | Care |            | Met    | Asp  | Asp    | Phe   |     |
| GIn         | Val   | Asp   | GIY      |     | ıyı      | PILE      | vai      | Cys  | 550        | MCC    | nop  | 11.55  |       | 555 |
| D1          | 0     | Ala   | ~1       | 545 | T1.      | Cln       | uic      | T1_  |            | T.e.11 | Ser  | Leu    | Ara   |     |
| Pne         | ser   | Ala   | GIU      | 560 | TIE      | GIII      | urs      | 116  | 565        | шец    | 001  |        | 5     | 570 |
| 70          | m     | Val   | Dho      |     | Thr      | בות       | Dro      | Tle  |            | Lvs    | Lvs  | Gln    | Pro   | Phe |
| Arg         | ıyı   | Val   | Pne      | 575 | TIIT     | AIa       | FIO      | 110  | 580        |        | -1-  |        |       | 585 |
| 1701        | Cura  | Ser   | Sar      |     | T.e.u    | Gln       | Phe      | Δla  |            | Gln    | Tvr  | Ser    | Arq   |     |
| Val         | Cys   | 261   | 261      | 590 | Deu      | 0111      | 1110     |      | 595        |        | -1-  | _      |       | 600 |
| <i>α</i> 1  | Dwo   | Leu   | Thr      |     | Δla      | Trn       | T.eu     | Ara  |            | Tvr    | Ile  | Lvs    | Trp   | Pro |
| GIU         | PIO   | пец   | 1111     | 605 | 7124     |           |          | 5    | 610        | - 2 -  |      | •      | _     | 615 |
| Ton         | Len   | Pro   | Dro      |     | Asn      | Tle       | Lvs      | Asp  |            | Met    | Asp  | Leu    | Glu   | Ala |
| пец         | Deu   | 110   | 110      | 620 |          |           | -1-      |      | 625        |        | -    |        |       | 630 |
| Val         | His   | Asn   | Val      |     | Asp      | Leu       | Tvr      | Leu  | Trp        | Leu    | Ser  | Tyr    | Arg   | Phe |
| VUI         | ****  | 1105  |          | 635 |          |           | 2        |      | 640        |        |      | -      |       | 645 |
| Met         | Asn   | Met   | Phe      |     | Asp      | Ala       | Ser      | Leu  | Ile        | Arg    | Asp  | Leu    | Gln   | Lys |
|             |       |       |          | 650 |          |           |          |      | 655        |        |      |        |       | 660 |
| Glu         | Leu   | Asp   | Glv      |     |          | Gln       | Asp      | Gly  | Val        | His    | Asn  | Ile    | Thr   | Lys |
|             |       |       |          | 665 |          |           | _        |      | 670        |        |      |        |       | 675 |
| Leu         | Ile   | Lys   | Met      | Ser | Glu      | Thr       | His      | Lys  | Leu        | Leu    | Asn  | Leu    | Glu   | Gly |
|             |       |       |          | 680 |          |           |          |      | 685        |        |      |        |       | 690 |
| Phe         | Pro   | Ser   | Gly      | Ser | Gln      | Ser       | Arg      | Leu  | Ser        | Gly    | Thr  | Leu    | Lys   | Ser |
|             |       |       |          | 695 |          |           |          |      | 700        |        |      |        |       | 705 |
| Gln         | Ala   | Arg   | Arg      | Thr | Arg      | Gly       | Thr      | Lys  | Ala        | Leu    | Gly  | Ser    | rys   | Ala |
|             |       |       |          | 710 |          |           |          |      | 715        |        |      |        |       | 720 |
| Thr         | Glu   | Pro   | Pro      | Ser | Pro      | Asp       | Ala      | Gly  | Glu        | Leu    | Ser  | Lev    | ı Ala | Ser |
|             |       |       |          | 725 | ;        |           |          |      | 730        |        |      |        |       | 735 |
| Arg         | Leu   | Val   | Gln      | Gln | Gly      | Leu       | Leu      | Thr  | Pro        | Asp    | Met  | Lev    | Lys   | Gln |
|             |       |       |          | 740 | )        |           |          |      | 745        |        |      |        |       | 750 |
| Leu         | Glu   | Lys   | Glu      | Trp | Met      | Thr       | Glr      | Glr  | Thr        | Glu    | His  | Asr    | ı Lys | Glu |
|             |       |       |          | 755 | 5        |           |          |      | 760        | )      |      |        |       | 765 |
| Lys         | Thr   | Glu   | Ser      | Gly | Thi      | His       | Pro      | Lys  |            |        | Arg  | Arc    | l LAS | Lys |
|             |       |       |          | 770 | )        |           |          |      | 775        | ,      |      |        |       | 780 |
| Lys         | Glu   | ı Pro | Asp      | Ser | Asp      | )         |          |      |            |        |      |        |       |     |
|             |       |       |          | 785 | 5        |           |          |      |            |        |      |        |       |     |
|             |       |       |          |     |          |           |          |      |            |        |      |        |       |     |

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<220>

PCT/US99/19361

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<221> misc feature
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Gly Trp Gly Arg Arg Lys Ala Glu Asp Lys Glu Trp Met Pro Val
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Thr Lys Leu Gly Arg Leu Val Lys Asp Met Lys Ile Lys Ser Leu
                                      40
                 35
Glu Glu Ile Tyr Leu Phe Ser Leu Pro Ile Lys Glu Ser Glu Ile
                                      55
Ile Asp Phe Phe Leu Gly Ala Ser Leu Lys Asp Glu Val Leu Lys
                                      70
Ile Met Pro Val Gln Lys Gln Thr Arg Ala Gly Gln Arg Thr Arg
Phe Lys Ala Phe Val Ala Ile Gly Asp Tyr Asn Gly His Val Gly
                 95
                                     100
Leu Gly Val Lys Cys Ser Lys Glu Val Ala Thr Ala Ile Arg Gly
                110
                                     115
Ala Ile Ile Leu Ala Lys Leu Ser Ile Val Pro Val Arg Arg Gly
                125
                                     130
Tyr Trp Gly Asn Lys Ile Gly Lys Pro His Thr Val Pro Cys Lys
                140
                                     145
Val Thr Gly Arg Cys Gly Ser Val Leu Val Arg Leu Ile Pro Ala
                                     160
                155
Pro Arg Gly Thr Gly Ile Val Ser Ala Pro Val Pro Lys Lys Leu
                170
Leu Met Met Ala Gly Ile Asp Asp Cys Tyr Thr Ser Ala Arg Gly
                185
                                     190
Cys Thr Ala Thr Leu Gly Asn Phe Ala Lys Ala Thr Phe Asp Ala
                                     205
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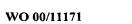
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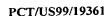
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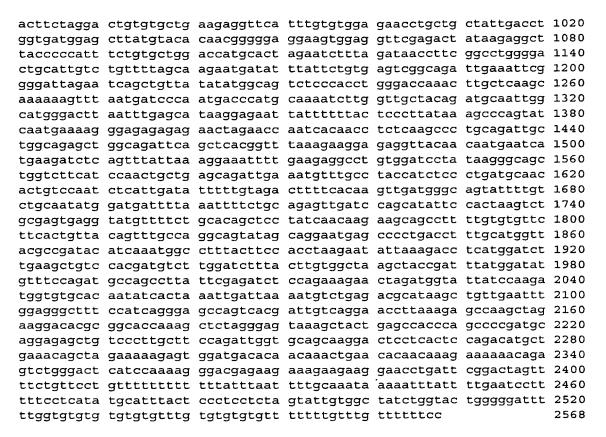
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